

2007 University Coal Research (UCR) Historically Black Colleges and Universities and Other Minority Institutions (HBCU/OMI) Contractors Review Conference



AGENDA



TUESDAY, JUNE 5, 2007 **GENERAL SESSION - GRAND BALLROOM 5**

7:00 a.m. Registration and Continental Breakfast - Grand Ballroom Foyer

8:00 - 9:00 a.m. **Opening Session**

Paula Flenory, Gasification and Fuels Division
U.S. Department of Energy
National Energy Technology Laboratory

Kamal Das, Gasification and Fuels Division
U.S. Department of Energy
National Energy Technology Laboratory

Robert Romanosky, Technology Manager, Power Systems Advanced Research
U.S. Department of Energy
National Energy Technology Laboratory

Keynote Address *Dale Keairns*, Senior Advisory Engineer
Science Applications International Corporation

Session A - Grand Ballroom 5 (Both Days)

MODERATOR: *Patricia Rawls*, Project Manager, Gasification & Fuels Division
U.S. Department of Energy, National Energy Technology Laboratory

9:00 - 9:35 a.m. Constitutive Models to Describe the Response of Materials for High Temperatures
Operating Conditions
I. Joga Rao, New Jersey Institute of Technology

9:35 - 10:10 a.m. Computational Design and Prototype Evaluation of Aluminide-Strengthened Ferritic
Superalloys for Power-Generating Turbine Applications up to 1,033K
Peter K. Liaw, University of Tennessee, Knoxville

10:10 - 10:45 a.m. Mechanisms of Impurity Effect and Ductility Enhancement of Mo and Cr Alloys
Bruce S. Kang and Ning Ma, West Virginia University

10:45 - 11:00 a.m. **Break**

11:00 - 11:35 a.m. Development and Advanced Characterization of Doped Nanoporous Carbons for
Hydrogen Storage
Angela Lueking, Pennsylvania State University

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SESSION A - GRAND BALLROOM 5

11:35 - 12:10 p.m. Development of Pd-Ag Composite Membrane for Separation of Hydrogen at Elevated Temperature
Shamsuddin Ilias, North Carolina A&T State University

12:10 - 1:25 p.m. **Lunch (on your own)**

MODERATOR: *Paula Flenory, Project Manager, Gasification & Fuels Division
U.S. Department of Energy, National Energy Technology Laboratory*

1:25 - 2:00 p.m. Closures for Coarse-Grid Simulation of Fluidized Gas-Particle Flows
Sankaran Sundaresan, Princeton University

2:00 - 2:35 p.m. Gasification Transport: A Multiphase CFD Approach and Measurements
Veeraya Jiradilok, Illinois Institute of Technology

2:35 - 4:30 p.m. **Poster Session – Grand Ballroom 3**



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Keynote Address *Dale Keairns*, Senior Advisory Engineer
Science Applications International Corporation

Session B - Grand Ballroom 4 (Both Days)

MODERATOR: *Elaine Everitt*, Project Manager, Gasification & Fuels Division
U.S. Department of Energy, National Energy Technology Laboratory

9:00 - 9:35 a.m. An Evaluation of the Feasibility of Combining Carbon Dioxide Flooding
Technology with Microbially Enhanced Oil Recovery Technologies in Order to
Sequester Carbon Dioxide
William Todd French, Mississippi State University

9:35 -10:10 a.m. Application of Cutting-Edge 3-D Seismic Attribute Technology to the Assessment
of Geological Reservoirs for CO₂ Sequestration
Tom Bjorklund, University of Houston

10:10 - 10:45 a.m. New Adsorption Cycles for Carbon Dioxide Capture and Concentration
James A. Ritter, University of South Carolina

10:45 - 11:00 a.m. **Break**

11:00 - 11:35 a.m. CO₂ Capture from Flue Gas by Phase Transition Absorption
Liang Hu, Hampton University

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TUESDAY, JUNE 5, 2007

SESSION B - GRAND BALLROOM 4

11:35 - 12:10 p.m. Study on Nanofiller-Modulated Oxygen Enrichment Polymer Membranes
Jianzhong Lou, North Carolina A&T State University

12:10 - 1:25 p.m. **Lunch (on your own)**

MODERATOR: *John Stipanovich*, Project Manager, Gasification & Fuels Division
U.S. Department of Energy, National Energy Technology Laboratory

1:25 - 2:00 p.m. Investigation of Nitrogen Evolution and Corrosion with Oxycombustion
Dale Tree, Brigham Young University

2:00 - 2:35 p.m. Lab-Scale Studies of Oxyfuel Combustion
Richard L. Axelbaum, Washington University in Saint Louis

2:35 - 4:30 p.m. **Poster Session – Grand Ballroom 3**



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WEDNESDAY, JUNE 6, 2007

SESSION A

7:00 a.m. Registration and Continental Breakfast - Grand Ballroom Foyer

MODERATOR: *Daniel Driscoll*, Project Manager, Gasification & Fuels Division
U.S. Department of Energy, National Energy Technology Laboratory

8:00 - 8:35 a.m. Fly Ash Catalyzed Mercury Oxidation Chlorination Reactions
Sukh Sidhu, University of Dayton

8:35 - 9:10 a.m. Analysis of Bromine-Mercury Reactions in Flue Gas
Geoffrey D. Silcox, University of Utah

9:10 - 9:45 a.m. Mercury Speciation in Coal-Fired Power Plant Flue Gas - Experimental Studies
and Model Development
Radisav D. Vidic, University of Pittsburgh

9:45 - 10:20 a.m. Development of a Heterogeneous Photocatalyst for CO₂ Sequestering
Sharon M. Molnar, West Virginia State University

10:20 - 10:35 a.m. **Break**

10:35 - 11:10 a.m. Integrated Removal of NO_x With Carbon Monoxide as Reductant, and Capture of
Mercury in a Low Temperature Selective Catalytic and Adsorptive Reactor
Peter Smirniotis, University of Cincinnati

11:10 - 11:45 a.m. Attrition Resistant Fischer-Tropsch Catalysts Based on FCC Supports
Adeyinka Adeyiga, Hampton University

11:45 - 1:05 p.m. **Lunch (on your own)**

MODERATOR: *Kamal Das*, Project Manager, Gasification & Fuels Division
U.S. Department of Energy, National Energy Technology Laboratory

1:05 - 1:40 p.m. Novel Adsorbent-Reactants for Treatment of Ash and Scrubber Pond Effluents
Bill Batchelor, Texas A&M University

1:40 - 2:15 p.m. Novel Anionic Clay Adsorbents for Boiler-Blow Down Waters Reclaim and Reuse
Theodore T. Tsotsis, University of Southern California

2:15 - 2:50 p.m. An Innovative System for the Efficient and Effective Treatment of Non-Traditional
Waters for Reuse in Thermoelectric Power Generation
James W. Castle, Clemson University

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WEDNESDAY, JUNE 6, 2007

SESSION A

2:50 - 3:05 p.m. **Break**

3:05 - 3:40 p.m. Value-Added Products from FGD Sulfite-Rich Scrubber Materials
Vivak M. Malhotra, Southern Illinois University, Carbondale

3:40 p.m. **Adjourn**



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WEDNESDAY, JUNE 6, 2007

SESSION B

7:00 a.m. Registration and Continental Breakfast - Grand Ballroom Foyer

MODERATOR: *Ayyakkanna Manivannan*, Project Manager, Power Systems Division
U.S. Department of Energy, National Energy Technology Laboratory

8:00 - 8:35 a.m. On the Accurate Determination of Syngas Flame Speeds at Elevated Pressures and Temperatures Using a Spherical Bomb
Yiguang Ju, Princeton University

8:35 - 9:10 a.m. Syngas & Hydrogen Combustion: Ignition and Flame Propagation
Chih-Jen Sung, Case Western Reserve University

9:10 - 9:45 a.m. Characterization of Atomic and Electronic Structures of Electrochemically Active SOFC Cathode Surfaces
Meilin Liu, Georgia Institute of Technology

9:45 - 10:00 a.m. **Break**

10:00 - 10:35 a.m. Combined Theoretical Experimental Investigation and Design of H₂S Tolerant Anode for Solid Oxide Fuel Cells
Gerardine G. Botte, Ohio University

10:35 - 11:10 a.m. Ag-Perovskite Composite Materials for SOFC Cathode-Interconnect Contact
Jiahong Zhu, Tennessee Technological University

11:10 - 11:45 a.m. Nanoscale Reinforced, Polymer Derived Ceramic Matrix Coatings
Rajendra Kumar Bordia, University of Washington

11:45 - 1:05 p.m. **Lunch (on your own)**

MODERATOR: *Susan Maley*, Project Manager, Gasification & Fuels Division
U.S. Department of Energy, National Energy Technology Laboratory

1:05 - 1:40 p.m. A Novel Low-Temperature Diffusion Aluminide Coating for Ultrasupercritical Coal-Fired Boiler Applications
Ying Zhang, Tennessee Technological University

1:40 - 2:15 p.m. Novel Nano-Intermetallics Coatings for Metal Alloys in Coal-Fired Environments
Zak Fang, University of Utah

2:15 - 2:50 p.m. Oxidation Resistance of Alloys from Nb-W-Cr System from 700 to 1400°C
Shailendra K. Varma, University of Texas at El Paso

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SESSION B

2:50 - 3:05 p.m. **Break**

3:05 - 3:40 p.m. Optical Fiber Sensor Instrumentation for Slagging Coal Gasifiers
Kristie Cooper, Virginia Polytechnic Institute and State University

3:40 - 4:15 p.m. Innovative Coal Solids-Flow Monitoring and Measurement Using Phase-Doppler
and Scattering Technique
Stephen Seong Lee, Morgan State University

4:15 p.m. **Adjourn**

